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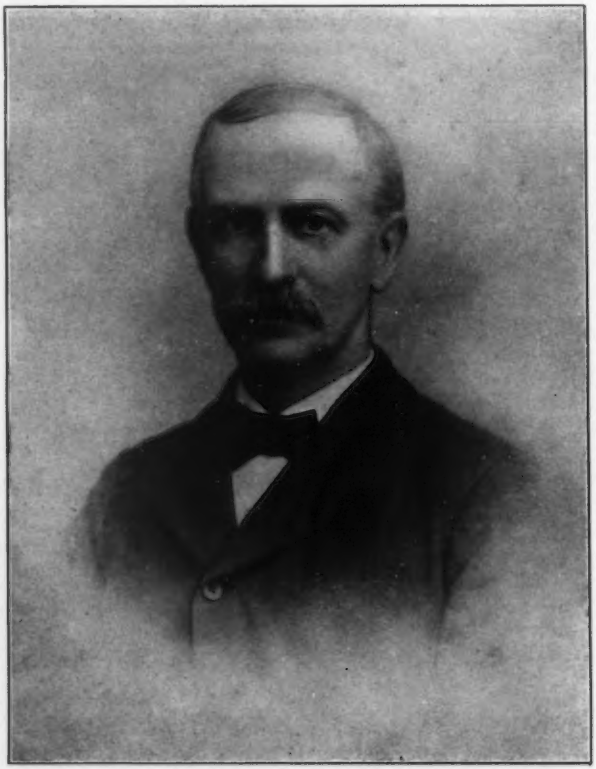
STATED MEETINGS

Of The American Entomological Society will be held at 7.30 o'clock P. M., on the fourth Thursday of each month, excepting June, July, August, November and December, and on the third Thursday of November and December.

Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the NEWS will furnish reprints of articles over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2.00; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates.



EZRA TOWNSEND CRESSON (DECEMBER, 1895).

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EZRA TOWNSEND CRESSON.

(Portrait, Plate VI.)

EZRA TOWNSEND CRESSON died on April 19, 1926, in his eighty-eighth year, at the residence of his son, E. T. Cresson, Jr., at Swarthmore, Pennsylvania.

With James Ridings and George Newman, he founded The Entomological Society of Philadelphia in February, 1859 (name changed to The American Entomological Society in 1867). Of this Society he served as Recording Secretary one year (1859), as Corresponding Secretary, sixteen years (1859-1874), as Curator, eight years (1866-1874), as Editor of the *Transactions,* forty-two years (1871-1912), as Treasurer, fifty years (1874-1924).

In 1861 he began a series of catalogues, synopses and monographs of the Hymenoptera of North America, numbering sixty-five papers by 1882, and summarized in a comprehensive *Synopsis of the Families and Genera of the Hymenoptera of America north of Mexico* [together with a Catalogue of the described species, and Bibliography], published in 1887.

From August, 1865, to October, 1866, he edited *The Practical Entomologist,* "A Monthly Bulletin of the Entomological Society of Philadelphia for gratuitous distribution among Farmers and Agriculturists," the first journal devoted to Economic Entomology published in the United States.

He headed the Publication Committee of The American Entomological Society which, on November 28, 1889, recommended the establishment of *Entomological News.* For thirty-seven years his name has appeared on the cover of this journal as one of its Advisory Committee.

On February 15, 1909, the Society celebrated the fiftieth anniversary of its foundation and adopted a resolution containing, *inter alia,* these words: "It especially rejoices in the presence tonight of one of the three founders of the Society, Mr. E. T.

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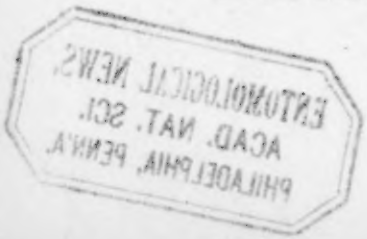
Cresson, who from the very first has continuously exerted himself in its interests, ... and with his own hands set type for its publications, besides composing long series of entomological memoirs, principally upon the Hymenoptera, which have given to him and to the Society an honorable distinction, both at home and abroad. To many a younger student he has kindly given his aid, his advice and his example. He has encouraged and furthered the progress of entomology in the United States far beyond the limits of his home by his activity as author and by his gift of his most important, valuable and extensive collection of Hymenoptera to this Society. Thankful for all his unceasing labors, this Society now places upon its records, in his presence, its deep appreciation of his services and extends to him its best wishes for many additional years of life and happiness in that field of science which he has cultivated so long and so well."

Those who were associated with him in this Society, in the conduct of its *Transactions* and of the *News,* recalling his unselfish devotion, his amiable and gentle character, can not but feel a sense of deep loss in his departure from among us.

Ezra Townsend Cresson, son of Warder and Elizabeth (Townsend) Cresson, was born June 18, 1838, at Byberry, Bucks County, Pennsylvania. Ever reticent of his personal history he left few memoranda of his early life, even to his family. The active interest of Dr. Thomas B. Wilson in the Entomological Society of Philadelphia led to some financial connection of Ezra Cresson with that philanthropist, terminated by the latter's death in March, 1865. Cresson entered the employ of the Franklin Fire Insurance Company of Philadelphia in 1869. In October, 1878, he was elected its Secretary, a position which he held until his resignation on February 16, 1910, for reasons of health. In 1859, he married Mary Ann Ridings, daughter of his co-founder of the Entomological Society, and had four sons and one daughter, two of whom, George Bringhurst Cresson (died October 18, 1919) and Ezra Townsend Cresson, Jr., have also taken an active interest in entomology.

The first number of the *Memoirs* of the American Entomo-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logical Society (1916) consists of a paper by Ezra Townsend Cresson, entitled *The Cresson Types of Hymenoptera*, giving an alphabetical list, under each family, of the species described by him, with reference to the original description, sex, number of the type-specimen, as recorded in the catalogue of types in the collection of the society, locality and condition of the specimens as found during the winter of 1913-14. It is there stated that types of 2737 species are enumerated. Following it is a list of the author's entomological writings "arranged in chronological order and numbered consecutively, to enable the student to locate the papers in which the types are described."

Method and order were among the most marked characteristics of Ezra T. Cresson and this paper of 1916 furnishes an almost complete guide and index to his original work on the insects he studied so faithfully.

Further details of his entomological labors are reserved for publication in the society's *Transactions*. Any one having letters from him which would add to the value and interest thereof are requested to lend them to the Editor of the NEWS for copy or extract. Such will be returned promptly.

Some New Miridae from the Eastern United States.

BY W. S. BLATCHLEY, Indianapolis, Indiana.

During the continuation of the work on my Manual of Heteroptera I have found in my collection of Miridae, or among those sent me for examination, a number of species which are apparently new to science. Of these six are named and characterized in the present paper. Unless otherwise stated the types are in my private collection.

Subfamily CAPSINAE.

Paracalocoris novellus sp. nov.

Elongate-oval. Dark fuscous-brown to black; head with a vague pale spot each side of base of vertex; eyes brown with a pale curved line behind and beneath; pronotum fuscous or blackish with a wide median orange-red cross-bar, this widened on sides to cover side margins behind the collar and with median ray projected backward, the latter sometimes

reaching on to scutellum and dividing the black of basal half of pronotum into two large spots; concavities behind calli present but without black spots; scutellum either wholly dark or orange-red with dark side margins; elytra wholly black, the membrane fuscous; legs black or fuscous, the basal halves of femora sometimes orange-red; tarsi fuscous-brown or paler; antennae black with apical segment dull white, the basal segment sometimes with an orange base.

Joint 1 of antennae about as long as pronotum, thickly clothed with long, forward-inclined, bristle-like hairs; 2 nearly twice as long as 1, 3 slightly shorter and distinctly stouter than 4. Pronotum and elytra thinly clothed with very fine, grayish, appressed hairs. Hind tibiae with scattered hairs which in no way obscure the spines. Length to tip of membrane, 7.5-8 mm.

Dunedin, Bassenger and Lake Wales, Florida, February 27-April 19. Nine examples beaten from foliage of oak and bay along the margins and paths of dense moist hammocks. Easily known from all described North American species by the pale fourth antennal, lack of discal black spots and peculiar markings of pronotum. *Type,* a female, taken at Dunedin, Florida, April 10, 1922.

The only species of *Paracalocoris* of which I can find definite mention from Florida is *externus* (H. S.), which Walker (1873, 91) records from St. John's Bluff and which Van Duzee places as a variety of *scrupeus*. McAtee does not include it in his recent Monograph and doubts its being a member of the genus.

Polymerus clandestinus sp. nov.

Elongate, subparallel. General color above fuscous-black; head with tylus shining black; cheeks, lorae, a spot on middle of vertex and another near each eye, dull yellow; pronotum fuscous-black, the collar, edges of side margins, area in front and each side of calli and a backward projecting ray between them, dull yellow; tip of scutellum yellowish; outer half of clavus and basal fourth of corium usually more or less dull yellow; embolium, anal ridge, outer apical angle of corium and tip of cuneus also yellowish; membrane a uniform translucent fuscous, feebly iridescent, the veins yellow; legs dull greenish-yellow; hind femora with two rows of small, vague, brownish dots on outer face and usually a brownish ring near

apex, sometimes in great part fuscous-brown; tips of tarsi and beak fuscous; under surface dull yellow, the pleura and side margins of ventrals more or less fuscous. Joint 1 of antennae yellow, fuscous near base and apex, three-fourths as long as basal width of vertex; 2 yellow, the apical fourth black, three and one-half times longer than 1; 3 fuscous, yellow at base, one-third longer than 4, the two united two-thirds the length of 2. Upper surface sparsely clothed with deciduous, appressed, scale-like, yellow hairs, these usually condensed to form small patches on clavus and corium. Pronotum of the usual form for the genus, the calli small but distinct; disk very finely rugose, with minute punctures between rugae. Scutellum finely transversely rugose. Clavus and corium very finely punctuate. Beak reaching hind coxae. Length 3.5—3.8 mm.

Royal Palm Park, Canal Point and Fort Myers, Florida, March 4—April 8; swept in some numbers from low herbage growing in moist mucky places. Allied to *P. basalis* (Reut.), but smaller, more parallel, without reddish marks, the second joint of antennae much more slender and a brighter yellow, the pale markings of pronotum distinctive. *Type* a female taken at Royal Palm Park, Fla., March 30, 1925.

Subfamily ORTHOTYLINAE.

Pilophorus brimleyi sp. nov.

Elongate, constricted behind the middle. Head, pronotum and scutellum dark blackish-brown, shining; clavus with inner basal third and apical half velvety black; remainder, consisting of an inverse wedge-shaped spot on outer basal third, which extends back and broadens between the two velvety ones, covered with a bluish bloom; corium without a trace of the usual sub-basal whitish cross-bar of the genus, the one on apical third present but short, not reaching claval suture and enclosed by a small bluish area, narrow basal half and a broad cross-bar just behind the white one velvety black, area behind the velvety bar and the entire cuneus steel-gray; membrane dusky-translucent, the cells and a spot behind tip of cuneus darker; femora dark brown, shining, knees and tips of coxae yellowish, tibiae and tarsi pale brown; pleura dark brown, ventrals shining black.

Joint 1 of antennae brown, paler at base and tip, slightly shorter than width of base of vertex; 2 brownish-yellow,

darker toward apex, gradually thickened from the base, four times as long as 1; 3 dull yellow, minutely pubescent, two-fifths as long as 2; 4 missing. Pronotum campanulate, basal portion strongly and evenly convex, little longer, but much wider and higher than front one, minutely granulate or subalutaceous. Scutellum small, moderately convex. Elytra strongly constricted, the basal half of corium less than half the width of apical third. Hind tibiae, male, almost twice as long as femora, very slender, slightly flattened, feebly curved. Length 6 mm.

Type, a male in the collection of the Division of Entomology, State Department of Agriculture, Raleigh, North Carolina. Taken at Windsor, North Carolina, July 7, 1925. Named in honor of C. S. Brimley, of Raleigh, who has done much to increase our knowledge of the insects of his State, and who has furnished many specimens to aid my work on Heteroptera. It differs from all described forms of the genus in having but one whitish cross-bar on corium, in the form of the bluish bloom-covered spot on clavus, in the distinctly bell-shaped pronotum and very narrow basal half of corium.

Subfamily BRYOCORINAE.

Pycnoderes convexicollis sp. nov.

♂—Elongate-oval. Head in great part fuscous, the cheeks and a stripe each side of vertex dull yellow; pronotum and scutellum shining black with a faint brassy tinge, very sparsely pubescent with fine prostrate hairs; elytra opaque with a bluish bloom covering most of the surface, cuneus, a large oblong spot near base of embolium and a smaller oval one near its apex pale yellow; apical half of membrane dusky yellow, its veins and a spot at base dark brown; femora dark brown to blackish, paler at base, tibiae pale brown, yellowish toward tips, coxae and tarsi pale yellow, claws fuscous; under surface black, sterna coarsely punctate, ventrals shining, almost smooth, minutely pubescent.

Joints 1 and 2 of antennae pale yellow, 1 three-fourths as long as width of vertex, 2 nearly three times as long as 1, 3 and 4 dusky, subequal in length, each about as long as 2. Pronotum with sides and base subequal in length; calli larger and much more prominent with median groove of basal half deeper and lateral impressions better defined than in either of our other eastern species; hind margin almost straight,

feebly notched at middle; embolium slightly narrower with margin less curved than in *dilatatus* and with only a trace of the transverse rugae of that species; membrane surpassing abdomen by two-thirds its length.

♀—Shorter and more broadly oval than male; color much the same. Gibbosity of pronotum higher, with median groove distinctly deeper, the sides and base more abruptly declivent and lateral impressions better defined. Elytra distinctly shorter; embolium slightly wider and more reflexed, its margin more strongly curved; membrane surpassing abdomen by less than one-third its length. Length, ♂ 3.5—3.8 mm.; ♀ 3—3.2 mm.

Marion, Putnam, Knox and Posey counties, Indiana, April 26—September 19; swept in numbers from low herbage in dense upland woods and in thickets along the banks of streams. *Type*, a male taken in Putnam Co., Indiana, August 9, 1925.

Our three eastern species of *Pycnoderes* may be separated by the following:

Key to Eastern Species of Pycnoderes.

a. Legs pale yellow, the apical third of hind femora alone darker; second joint of antennae subequal in length to width of head; veins of membrane not distinctly darker than the disk.

b. Embolium with a distinct apical or subapical pale spot; costal margin of elytra feebly curved; pronotum thickly pubescent; length 3.2 mm. QUADRIMACULATUS Guerin

bb. Embolium with subapical pale spot very small or wanting; costal margin of elytra strongly curved; pronotum with pubescence scarcely evident; length 3.5—4 mm. ..... DILATATUS Reuter

aa. All the femora in great part or wholly blackish-brown, tibiae pale brown; second joint of antennae distinctly longer than width of head across eyes; veins of membrane dark brown ..... CONVEXICOLLIS sp. nov.

Sixenotus albicornis sp. nov.

Closely allied to *insignis* Reut. Form more elongate and subparallel. Head and pronotum shining black, devoid of the subaeneous tinge of *insignis*. Eyltra dark piceous-brown, opaque, subtranslucent, minutely pubescent. Antennae and legs a uniform very pale yellow or milky white; membrane with cells dark fuscous, apical half dull white, veins blackish.

Pronotum relatively longer and narrower in front than in *insignis,* its disk more distinctly obliquely strigose with rows of punctures between the strigae, the punctures coarser and less dense than in *insignis.* Length 3.3—3.5 mm.

Palmdale, Moore Haven, Royal Palm Park, Everglades and Dunedin, Florida, November 19—April 23. Hibernates beneath boards and between basal leaves of sedges and in spring swept from herbage along the margins of wet hammocks. *Type* a male from Dunedin, Fla., taken March 28, 1921.

Sixenotus gracilis sp. nov.

Oblong-oval. Head, pronotum, scutellum and under surface black, distinctly bronzed; joints 1 and 2 of antennae, embolium and legs yellow, cuneus, membrane and dilated apex of embolium white; veins of membrane and joints 3 and 4 of antennae fuscous-brown.

Eyes larger and vertex narrower than in our other three species. Joint 1 of antennae relatively stout, cylindrical, three-fifths the length of 2; 3 and 4 more slender than in *insignis,* subequal, each slightly longer than 2. Pronotum with basal lobe narrower, more convex, more finely and densely punctate than in either of the others, the basal margin broadly rounded or subtruncate. Elytra and ventrals sparsely clothed with minute golden yellow hairs. Length 2.4—2.6 mm.

Fort Myers and Hillsboro Canal, Florida, March 4—24. The type was sifted from the debris on the mucky bottom of an extinct wet weather pond at Fort Myers. Easily known by its small size and pale embolium and cuneus. *Type,* a female taken at Fort Myers, Fla., March 4, 1921.

The four eastern species of *Sixenotus* are separated as follows:

Key to Eastern Species of Sixenotus

a. Antennae and legs not wholly black; elytra very finely and indistinctly pubescent.

b. Cuneus and embolium black; basal joint of antennae distinctly shorter than width of vertex; larger and more robust; length 3.3—3.5 mm.

c. Antennae in part black or fuscous; legs dull yellow more or less tinged with fuscous; middle and hind tibiae with two vague-brown annuli.....INSIGNIS Reut.

cc. Antennae and legs wholly milky white or very pale yellow, tarsal claws alone darker.
ALBICORNIS sp. nov.

bb. Cuneus white, embolium pale yellow; basal joint of antennae slightly longer than width of vertex; smaller and more slender, length 2.4—2.6 mm.
GRACILIS sp. nov.

aa. Antennae and legs wholly black; elytra coarsely and distinctly pubescent; length 2.8—3 mm.
TENEBROSUS Distant

Observations on the Life-Histories of Two Species of Praying Mantis (Orthopt. : Mantidae).

By MARY DIDLAKE, Lexington, Kentucky.

(Plates VII, VIII.)

Two species, the common *Stagmomantis carolina* and a big Chinese species, *Paratenodera sinensis,* have been reared in the laboratory of the Department of Entomology and Botany, of the Kentucky Agricultural Experiment Station, and carried through several generations in as many successive years.

The egg-mass of the foreign species was found May 8, 1917, on a shrub in the nursery of Wood, Stubbs & Co., Louisville, Kentucky, and brought to our laboratory by Mr. H. R. Niswonger. The shrub had been received either in a European shipment or one from the Eastern States, where this insect has been recorded as having been established.

It was found possible to rear the species from time of hatching until maturity as described below, molting, mating, egg-laying, regeneration of injured limbs and antennae being easily observed.

REARING.

Eggs taken from twigs out-of-doors, or laid in the laboratory were placed outside all winter. When they began to hatch, in May or June, individuals were isolated in homeopathic vials, tightly stoppered. These vials were handled in wooden vial racks holding about a dozen. In each vial a strip of filter paper furnished a support to which the baby mantis could cling.

About the third molt the vials became rather close quarters

and the insects were transferred to four-ounce wide-mouthed bottles with cork stoppers and a strip of cardboard to stand upon, individuals still being kept separate. Before the last molt they were given still larger accommodations, either quart specimen jars or 6-inch Stender dishes.

Feeding.

As is well known, the Praying Mantids are preying insects and are classed as beneficial because they eat plant lice, caterpillars and various other enemies of vegetation. They are, furthermore, cannibals, and from infancy devour each other with relish. When hungry they ate readily almost every insect species that came their way, the only invariable requirement was that the food be served "alive and kicking." Tiny leaf-hoppers, *Drosophila, Meromyza,* minute "looping" caterpillars, etc., collected in a sweep net and distributed to each vial furnished most acceptable food. Bigger leaf-hoppers, larger flies and caterpillars, and young grasshoppers became suitable food as the mantids increased in size. After the third molt, mantids could capture house-flies, and never seemed to tire of the diet. Quantities of these were caught in wire traps placed outside a laboratory window, baited with banana.

Full grown adults if hungry ate almost any living thing, spiders, hairy caterpillars, (*Datana, Apatela*), furry moths, bad-smelling stink bugs, hard-bodied wasps (*Vespa*), huge cock-roaches and grasshoppers as large as themselves. Some individuals which survived late in the season when other insects grew scarce, relished fat chestnut worms, meal worms, etc.

They seemed never to kill other insects except for food. When not hungry a mantis might be annoyed for hours by a fly, and make no effort to kill it just to be rid of it. Again, a small mantis was so hungry that it snatched a leaf-hopper in one fore-limb and a pomace fly in the other and took a bite alternately from the right and from the left.

In captivity it is certainly the rule, with rare exceptions, for the adult female to devour the smaller male, leaving only his wings, antennae, spiny legs and horny jaws. Perhaps in nature he more often has a chance to escape.

Molts.

As young mantids hatched, one could always find the exuviae or envelopes left suspended from the openings of the egg-mass; but I have not counted this as a molt. Mantids were never observed to eat their cast skins, as do katydids and various other insects. The following figures are averages from 39 males and 41 females reared from eggs to maturity:

Males of the common southern mantis (*Stagmomantis carolina*) commonly molted six times, only 15½% of those carried through having seven molts. The average time elapsing between molts was 15 days before the first molt, 10 days to the second molt, 9 to the third, 10 to the fourth, 12 to the fifth, 18 to the sixth and 18 to the seventh molt; the shortest time between any two molts was 5 days and the longest 31 days. The average time for full development was about 77½ days, the shortest period recorded being 66 days and the longest, 99.

Females commonly molted seven times, only 17% completing development with six molts. The average time between molts was 15 days before the first molt, 9½ days to the second molt, 8 to the third, 9 to the fourth, 9½ to the fifth, 14 to the sixth and 17½ to the seventh. The shortest time between any two molts was 6 days and the longest 26. The average time from hatching to adult emergence was 79 days, the shortest period being 69 days and the longest 91.

The following figures are averages from 17 males and 14 females reared from eggs to maturity:

Both sexes of the Chinese mantis (*Paratenodera sinensis*) commonly molted seven times, occasional individuals requiring eight molts. Of the *males* 76½% molted seven times, the average time between molts was 11 days to the first molt, 10 to second, 8½ to the third, 8 to the fourth, 10 to the fifth, 12 to the sixth, 17 to the seventh and 19 to the eighth; the shortest time between any two molts was 6 days and the longest 21. The average time for full development was 77 days, the quickest individual requiring 67 days and the slowest 87 days.

Of the *females* over 85% molted only seven times. The

average time between molts was 12 days to the first molt, 10½ to the second, 7½ to the third, 8 to the fourth, 10 to the fifth, 11 to the sixth, 19 to the seventh and 17 to the eighth molt; the shortest time between molts was 6 days and the longest 32 days. The average number of days to adult emergence was 78, the shortest being 67 and the longest 91 days.

Variation in Size.

Variation in size of growing mantids of the same age was such that one individual might be as large after the fourth molt as another of the same sex and species, after the fifth molt. Mantids just hatched measured 8 to 10 mm. with a slowly graduated increase at each molt until adults of the common species reached a length of 50 to 56 mm., and the Chinese species adult measured 80 to 84 mm. Females were larger, stronger asd more robust than males.

The antennae increase in length and in number of joints at each molt after the first, our common species starting with antennae 4 mm. long and consisting of 35 joints; the adult female has antennae 13 mm. long with about 75 joints and the male 25 mm. long with 88 joints. *Paratenodera* when hatched has antennae 7 mm. long of about 49 joints and antennae of adult female measure 26 mm. and have 148 joints; those of adult males, 35 mm. long with 158 joints.

It was difficult to estimate the exact number of joints as a few near the base became more or less fused and impossible to distinguish.

Only in the last two molts before the adult condition does the number of joints in the antennae of males and females show much difference, and then the structure also becomes clearly differentiated, the antennae of the male being longer, much stouter at base, and under the microscope showing a more elaborately pitted and ciliated surface.

Color.

When hatched all mantids looked alike, having a glossy surface of a tan or brown color, with a few dark spots on the legs. The young *Paratenodera* showed a lighter tan stripe

along each side of the thorax. In all of those observed none was green at first.

Before the first molt some appeared lighter brown and even had a slightly greenish hue. After this molt quite a number were green and tan, the legs being usually more or less green. After the second and third molts a few individuals were often vividly green, but those reared in the laboratory invariably lost the green color before maturity. Young, green individuals caught out-of-doors and kept subsequently in the house always became tan and brown. Out-of-doors, bright green adult females seemed rather more common than brown ones.

Sex Differences in Young Mantids

When first hatched it seemed impossible to distinguish male from female, but often after the first molt, and with certainty after the second, one could make out the sex by a study of the ventral abdominal segments. The little vials and motionless positions of the young made this observation easy on the living specimens.

At first there are visible dorsally, ten segments, and ventrally, eight. Adult males show these same numbers; adult females have the ten recognizable segments dorsally, but only *six* ventral ones. Young males invariably show straight ventral lines of division between each of the eight segments. But with females, after the first molt, the sixth and seventh segments (two next the tip) appear slightly notched. After the second molt the notch on the sixth is deeper and it begins to lap over the seventh. As growth proceeds, the seventh and eighth segments become much modified and disappear behind the sixth, telescoping into it, so that by the fourth or fifth molt the now deeply cleft sixth segment appears the terminal one, underlying four dorsal segments; whereas in the young of both sexes and in the adult male the terminal ventral segment underlies two dorsal ones. (See figures A-F, Plate VII.)

Eggs.

Normally, I think eggs would be laid about two weeks after mating, though the time observed varied from two days to

three weeks. In several instances as many as five lots of eggs were produced by one female *Stagmomantis carolina*, at intervals of 10 days to two weeks apart, the last lots being small and imperfect. With both species, two or three batches of eggs seem quite commonly deposited by one mantis.

The egg-mass of *Paratenodera* is much larger than that of our common species, measuring about 2x2x2 cm., while the latter is 2 cm. long, 1 cm. broad and .75 cm. thick. Nearly all those laid by *Paratenodera* in the laboratory seemed incomplete and not so large as the original one found out-of-doors, but produced abundant young ones the following spring. The eggs are much more numerous in each mass, and instead of being in straight rows are arranged in a sort of fan-shaped series about a central stem or axis.

Although numerous young of *Paratenodera sinensis* were liberated on the Experiment Station Ground and elsewhere, only one adult has thus far been observed and no egg-masses have been found out-of-doors.

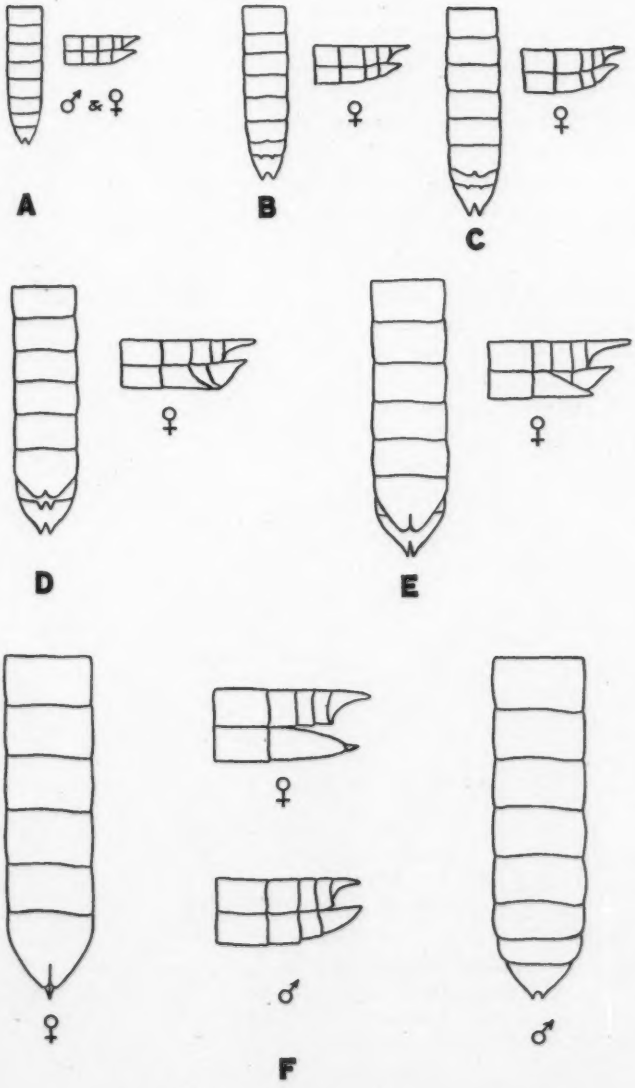
EXPLANATION OF PLATE VII.

Figs. A-F. Changes in Ventral Abdominal Segments of Young Mantids Distinguishing Female and Male; also Side Views of Tip of Abdomen. *A*. Before first molt Both Male and Female Show 8 segments. Terminal Ventral One Underlying 2 Dorsal Ones. *B*. Female after first Molt. Sixth and Seventh Segments Slightly Notched. *C*. Female after second Molt. Notches More Apparent. *D*. Female after third Molt. Seventh and eighth Segments Beginning to Disappear behind Notched sixth One. *E*. Female after fourth Molt. Sixth Segment More Deeply Cleft and Extending Further. *F*. Female and Male after fifth Molt. Female with Only 6 Ventral Segments, Tip Underlying 4 Dorsal Ones. Male 8 Segments as at First. Drawn by Virginia Anderson.

PLATE VIII.

Common Mantids Just Hatching and Young Ones Detached from Egg-Mass before the Legs are Ready for Use. Enlarged. Photographed by E. C. Vaughn.

Both plates are of *Stagmomantis carolina*.



CHANGES IN VENTRAL ABDOMINAL SEGMENTS OF YOUNG STAGMOMANTIS CAROLINA—DIDLAKE.

STAGMOMANTIS CAROLINA, HATCHING AND AFTER HATCHING—DIDLAKE.

Thomas Lincoln Casey as a Coleopterist.

By MELVILLE H. HATCH,[1] University of Michigan,
Ann Arbor, Mich.

Thomas Lincoln Casey was born on February 19, 1857, at West Point, New York, the son of Gen. Thomas Lincoln Casey and Emma Weir, and grandson of Major Gen. Silas Casey. Predestined in this fashion for the army, it is with no surprise that we find him receiving his commission as First Lieutenant twenty-two years later (1879), and eventually rising to the rank of Colonel (1909). The chronological table at the conclusion of this paper outlines the principal events of his career.

Casey took up the study of Coleoptera as a hobby. He inherited sufficient means, not only to render him financially independent, but to purchase specimens and literature in large quantities and to publish the results of his investigations privately, when such appeared desirable. His not overly onerous duties in the army allowed him the time for collecting and the study of his specimens. By 1884, the year of his first published work, he had undoubtedly assembled a collection of considerable proportions.

A Revision of the Cucujidae of America North of Mexico (84*:69-112) published in the Transactions of the American Entomological Society for 1884, and submitted for publication on November 9 of the previous year, apparently constitutes Casey's first published work. He was closely associated with Leconte and Horn in the course of its preparation, and it represents the spirit of those authors at its best. Keys, moderately long descriptions (10 to 20 lines), figures of nearly all the species, are all similar to those found in Horn's papers. Thirteen new specimens are described out of a total of fifty-eight.

The same year however, Casey published privately three papers of an entirely other tenor: two *Contributions to the*

[1]Contribution from the Zoölogical Laboratory of the University of Michigan.

* Throughout the present paper reference is made to Casey's publications as listed by Leng (1920, p. 375-376) and supplemented by him in 1925 (p. 100) by the use of two numerals to indicate the year followed by a semicolon and an indication of the page or pages.

Descriptive and Systematic Coleopterology of North America (84: 1-60; 84: 61-198) and a *Revision of the Stenini of America North of Mexico* (84: 1-206). No less than 300 species, a large pecentage from uniques, are described as new in these papers, 148 of these Stenini, out of a total of 171 species of that tribe. In the first place, Casey insisted on replacing the hand-lens of Leconte and the earlier entomologists with the modern biobjective binocular microscope. He was always much interested in securing accuracy of measurement and eliminating the personal equation as far as possible (98: 116-7). He points out, for instance, the tendency of Leconte constantly to exaggerate his dimensions. Furthermore, "It has been my aim," he wrote (84:61) "not only to describe the species, but to make a separate study of each." This resulted in descriptions averaging about three-fourths of a page or fifty lines long, and revealed a mass of unsuspected differences to which Casey gave specific value.

The reason for their private publication was undoubtedly, in part, because no current entomological journal would accept them. Indeed, with the exception of the years 1898-1900, when certain of his papers appeared in the Journal of the New York Entomological Society, those of Casey's major contributions that were not published privately, appeared in the publications of various academies of science (California, 1885-87; New York, 1888-1897; St. Louis, 1905-1906; and Washington, 1907-1909). This was undoubtedly largely because of the greater facilities for the publication of extended memoirs offered by the academies. One may suggest, however, that the radical nature of the work played some part.

The basis of Casey's specific discrimination was an increased attention to details of habitus and sculpture. The time had arrived when coleopterists looked with increasing suspicion upon differences founded upon color or color pattern. Differences in proportion and sculpture were regarded as more significant. Casey took up with this tendency and carried it toward its logical conclusion, until at the time of his death he had published 8621 pages describing almost as many Nearctic

species as all other coleopterists together. His collection is said to have numbered 15,000 species.

The pamphlets met with immediate opposition. John B. Smith (Ent. Amer. 1885, Vol. I—58-59) found it "impossible to say a word of praise." The "descriptions are aggravating, for their minuteness of detail . . . and . . . are individual, and not characteristic of species." The binocular microscope that he used showed him too much! Smith concluded with the surmise that he would live to regret the early effort, a prediction that was only very partially fulfilled (89:325). In the same year, Horn (1885:108-113) indicated a considerable number of the species as synonyms. But opposition of this character did not continue. There lacked men of the temperament to contest the new species one by one, as they were announced. There gathered, instead, a general mistrust of the whole work.

One of Casey's leading characteristics was that he did not regret. Granting his premises about the nature of specific differences, there was nothing to regret,—for all attest to the extreme accuracy and honesty of his work. Very rarely, he admitted that he described a synonym as in the case of *Harpalus viridiaeneus* Beauv. and its variants (89: 325). But oftener, his restudy of old material led him to reject his previous determination and describe the specimen as new or break up the series of his original species into several.

In 1888 (88:18) Casey published a criticism of some of the tables in Leconte and Horn's *Classification of the Coleoptera of North America.* The cudgels were immediately taken up by John Hamilton (1888, p. 78), who suggested that Casey try constructing some tables of his own. The succeeding years constituted Casey's answer. But analysis, rather than synthesis, was always his dominant interest. His tables are usually to species, less frequently to genera and tribes, only very rarely to the primary family divisions and never to groups above the family. In the light of the relationship of Casey's work to Leconte and Horn's *Classification of the Coleoptera of North America* such a procedure is understood. Despite his criticism of this work, Casey accepted it as his point of departure, and

apparently never went so far as to regard the erection of an entirely new edifice a necessity. Casey ranged over the entire coleopterous series to such an extent that his failure to work with the aquatic families, Elateridae and Chrysomelidae is as noteworthy as his great amount of attention to Carabidae, Staphylinidae, Tenebrionidae, Cerambycidae and Curculionidae. Among the families he monographed for North America north of Mexico are Scydmaenidae, Anthicidae, Dermestidae, Byrrhidae, Cucujidae, Cryptophagidae, Phalacridae, Coccinellidae, Alleculidae and Cisidae, and the subfamilies Rutelinae, Dynastinae and Cetoniinae among the Scarabaeidae. Hamilton would have triumphed, indeed, could he have lived to see Casey admit his inability to construct a dichotomous table to the thirteen tribes of Brazilian Barinae (22:3). Casey gave but scant interest and equal praise to such work as Batchley's *Coleoptera of Indiana* (11:199).

Casey's first work, despite its radical character, conformed to traditional channels in so far as he availed himself of the collections of institutions (as the National Museum, and the Leconte collection at the Museum of Comparative Zoology) and other scientists (Leconte, Horn, Schwarz). As late as 1890 he acknowledges such aid (90:307), and numerous of his earlier types were in these collections. In succeeding years, however, he ceased from this custom, and come to confine himself entirely to his own collection, which was amassed largely by purchase. Among the more important of these purchases seem to have been, the cabinet of Dr. G. M. Levette of Indianapolis, purchased in 1890 (90:501), and an extensive collection of Brazilian Barinae purchased from Herbert H. Smith about 1893. Among the American collectors from whom he obtained specimens by purchase or otherwise may be mentioned Wickham, Fall, Manee, Knaus, Blatchley, and Frost.

He came to play a lone hand. He never consulted the other American collections, and often regrets his inability to study a particular species because his collectors had been unable to find it, when types may have been in existence in Philadelphia or Boston. In place of the types, he interpreted the published descriptions with the greatest strictness, and the least failure

of the specimen at hand to correspond at all points with the written description justified its recognition as a new species. For instance, he once remarked (05:21) that his failure to secure H. H. Smith's collection of Brazilian Staphylinidae was one of the greatest disappointments of his scientific career. Their presence in the Carnegie Museum rendered them utterly unavailable for his purposes! He displayed little willingness to coöperate in the production of such a work as Blatchley's *Coleoptera of Indiana* (1910, p. 5), though his help is acknowledged in connection with Blatchley and Leng's *Rhynchophora* (1916, p. 6).

The limitations involved in Casey's procedure in assembling his collection, together with the exhaustiveness of the study to which he subjected his specimens, resulted in a difficulty of a special nature that accompanies the use of his monographic revisions. Even the most extensive use of collections, from all parts of the country, so splendidly exemplified by certain of the work of Schaeffer, Leng, Fall and others, resulted in the most unfortunate geographic gaps. Casey's procedure, involving only such material as he could purchase, and ignoring the accumulated collections, left much more serious gaps. The extreme significance that he attached to the most minute variation rendered it probable that his taxonomic units were often of limited geographic range. The result was that a disproportionately small portion of the total variational range of the group—in the light of his criteria—was represented, and the chance rendered almost a certainty that specimens from numerous of the localities unrepresented in Casey's collection were as worthy of description as new as those that Casey himself recognized. Casey himself, undoubtedly felt this, and attributed it to the undeveloped condition of his science. But it is a point that must be remembered in the use of his keys.

Another departure made by Casey in much of his monographic work, especially his later studies, was the practice of including mention of as many exotic genera and tribes as his material permitted. In this way he tended to break away from the provincialism that is still one of the outstanding traits of American coleopterology.

(To be continued)

Conocephalus nigropleurus (Bruner) in Pennsylvania (Orthoptera).

By HENRY FOX, Associate Entomologist, Fruit Insect Investigations, Bureau of Entomology, United States Department of Agriculture.*

During the summer of 1925 the writer had the privilege of examining a series of collections of Orthoptera made on Montgomery Island, in the Susquehanna River, at Milton, Northumberland County, Pennsylvania. These collections were made at the writer's suggestion by Mr. R. L. Coffin, a member of the staff of the Japanese Beetle Laboratory. Mr. Coffin, during the summer, was in charge of a party of Government scouts engaged in the work of keeping Montgomery Island and the surrounding country under surveillance because of the possibility of Japanese beetle infestation, a few of these insects having been taken on the island by one of the Government scouts the year before. The Orthoptera taken on the island were gathered primarily to get seasonal data for comparison with similar data from southern New Jersey.

With a single exception, all the species represented in the collections are forms common to, and generally known to occur in, all parts of Pennsylvania, but in the material sent in I was surprised to find a few examples of the handsome black-sided grasshopper, *Conocephalus nigropleurus* (Bruner), a species hitherto unrecorded from the State and not previously known farther east than Ithaca, New York. The discovery of this species in north-central Pennsylvania is another instance of how persistent local collecting will often reveal the presence of an unsuspected form far beyond the supposed limits of its range.

According to information supplied by Mr. Coffin, the species was taken in only a very limited area, in a sort of slough along one side of the island. During high water this is overflowed, but at the time the collections were made it was overgrown with a variety of grasses and weeds together with clumps of low willows and patches of tall ragweed (*Ambrosia trifida*).

* Publication authorized by the Secretary of Agriculture.

The species was represented in the collections by the following material:

Montgomery Island, West Milton, Pa., VII 13, 1925, 1 juv. ♂, 5th instar; VII 20, 1925, 1 ♀; VII 28, 1925, 1♂. (R. L. Coffin, collector.)

Other species of Orthoptera collected at the same locality are the following:

Arphia xanthoptera (Burm.), VIII 10, 1 juv. ♂, 4th instar.
Encoptolophus sordidus (Burm.), VII 6, juvs., VIII 10, juvs.
Dissosteira carolina (Linn.), VII 6, juvs.; VII 13, 1 ♂ 2 ♀, 2 juvs.; VII 20, many adults and juvs.; VIII 10, 2 ♀, 1 juv.; VIII 17, 1 ♂, 3 ♀; VIII 24, 1 ♂, 1 juv. ♀.
Melanoplus mexicanus atlanis (Riley), VI 30, 2 ♂, 1 ♀; VII 6, 2 ♀; VII 13, 1♀.
Melanoplus femur-rubrum (DeG.), VI 30, juvs.; VII 6, juvs.; VII 13, juvs.; VII 15, juvs.; VII 20, juvs.; VIII 10, 6 ♂, 2 ♀, many juvs.; VIII 17, 11 ♂, 8 ♀, numerous juvs.; VIII 24, 11 ♂, 11 ♀; many juvs.
Melanoplus bivittatus (Say), VI 30, juvs.; VII 6, 1 ♂; VII 13, 3 ♂; 5 ♀; VII 20, adults, nymphs; VIII 10, 1 ♂, 2 ♀, 1 juv.; VIII 17, 1 ♀; VIII 24, 3 ♂, 2 ♀.
Phaneroptera furcata (Bruner), VII 15, 1 juv.
Orchelimum vulgare (Harr.), VII 6, juv.; VII 13, juv.; VII 17, 1 ♂, 1 ♀; VIII 24, 2 ♂.
Orchelimum gladiator (Bruner), VI 30, 1 juv. ♂, 5th instar.
Conocephalus fasciatus (DeG.), VII 6, juvs.; VII 13, 1 juv.; VII 15, juvs.; VII 20, 2 juvs.; VIII 10, 2 ♀, 2 juvs.; VIII 17, 2 ♂, 3 ♀; VIII 24, 2 ♂, 6 ♀.
Conocephalus brevipennis (Scudd.), VIII 10, 1 ♂; VIII 17, 1 ♂, 2 ♀; VIII 24, 1 ♂, 3 ♀ (1 ♀ macropterous).

Personal Mention.

An oil painting of William Lochhead, emeritus professor of entomology and zoology in Macdonald College of McGill University, Montreal, was unveiled on March 17 by Sir Arthur Currie, vice-chancellor and principal of the university. The portrait was painted by Mr. G. Horne Russell, president of the Royal Canadian Academy, on subscription of a large number of Prof. Lochhead's colleagues, former pupils and other friends. —(*Science*, March 26, 1926.)

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., JUNE, 1926.

Collecting Homoptera in Mexico.

G. F. FERRIS, Assistant Professor of Zoology at Stanford University, who has been traveling during the past year in Mexico expects to arrive home about the first of June. As was announced in *Entomological News* of last July (p. 209) he originally planned to accompany a geological party sailing on a private yacht to Mexico and South America. Unfortunately the boat was sunk in a collision only a few days before the party was due to leave and he was compelled to reorganize his plans.

He consequently went to Mazatlan, on the west coast of Mexico by train. He spent some time about Mazatlan, San Blas and Tepic and also visited the Tres Marias Islands, about sixty miles off the coast, which are occupied only by a Mexican penal colony. Also some time was spent about Manzanillo and Colima and in an attempt to ascend the Volcano of Colima. The attempt was frustrated, however, by heavy and entirely unseasonable rains and snows.

From Colima he proceeded on foot with two burros to carry his equipment and accompanied by a Mexican boy to Acapulco, a distance of about four hundred and fifty miles through the mountains, five weeks being spent on this trip. After a stay of three weeks in the vicinity of Acapulco, he went by steamer to Salina Cruz and then visited and collected about that port, Puerto Mexico on the east coast and several other points on the Isthmus of Tehuantepec. His last collecting will be in the region about Mexico City.

His principal purpose was the collecting of material in the Coccidae and in this group a very extensive collection was obtained. From field observations alone it is impossible to judge with any exactness as to the richness of the collection, but it is known to contain a large number of unusual forms and, unless there proves to be an entirely unsuspected amount of duplication, it may be roughly estimated that it numbers in the neighborhood of three hundred and fifty species. Nearly all of these are from wild hosts, as no special attempt was made to obtain material from cultivated trees and shrubs.

In addition to the Coccidae there is a small collection of Aphids, for the Aphid fauna appears to be extremely poor, but of much importance for practically nothing has been known of this family in Mexico. Of the species it can at present be said

only that no evidence appears of the presence of any special and peculiar tropical fauna.

There was also obtained a very interesting collection of Chermids (Psyllids), this being especially valuable as in the majority of cases both nymphs and adults were secured. It includes a number of gall-making forms and undoubtedly most of the species are undescribed.

An incidental collection of Aleyrodids and some small amount of material in certain other groups was also secured. No attempt was made to gather general collections. The collections are the private property of Professor Ferris but it is expected that they will eventually be deposited in the entomological collections of the newly organized Museum of Biology at Stanford. With the addition of this material the value of the collection of Coccidae now contained in that Museum and already probably the second largest in the world will be very materially increased.

Professor Ferris reports an extremely enjoyable year, entirely devoid of unpleasant incidents of any sort and even of illness although wild and unfrequented, and in part very unhealthy, portions of the country were visited.

Entomological Literature

COMPILED BY E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers in Heavy-Faced Type refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

Papers of systematic nature will be found in the paragraph beginning with (N). Those pertaining to Neotropical species only will be found in paragraphs beginning with (S). Those containing descriptions of new forms are preceded by an *.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Papers published in the Entomological News are not listed.

5—Psyche. **8**—The Entomologist's Monthly Magazine. **9**—The Entomologist. **13**—Journal of Entomology and Zoology, Claremont, Cal. **14**—Ent. Zeitschrift, Frankfurt, a. M. **15**—Insecutor Ins. Menstruus. **17**—Ent. Rundschau, Stuttgart. **18**—Internationale Ent. Zeit., Guben. **20**—Societas Entomologica, Stuttgart. **22**—Bulletin of Ent. Research, London. **24**—Annales, Soc. Ent de France. **26**—Ent. Anzeiger, Wien. **33**—Bull. et Annal. Soc. Ent. Belgique. **36**—Trans., Ent. Soc., London. **39**—The Florida Entomologist. **47**—Neue Beitr. z. Syst. Insektenkunde. **56**—Konowia, Wien. **59**—Encyclopedie Ent., Paris. **68**—Science.

69—Comptes Rendus, Acad. Sci., Paris. **71**—Novitates Zoologicae. **75**—Annals and Mag. of Nat. History, London. **77**—Comptes Rendus, Soc. Biologie, Paris. **89**—Zool. Jahrbucher, Jena. **101**—Biol. Bulletin, Woods Hole, Mass. **103**—Proc., Zool. Soc., London. **104**—Zeit. f. Wissen. Zool., Leipzig. **107**—Biologisches Zentralblatt. **116**—Ann. of Applied Biology. **117**—Proc., Linnean Soc., N. S. Wales. **120**—Ann., Naturh. Mus., Wien. **133**—Jour. Experimental Zool. **153**—Bull., Mus. Nat. Hist. Naturelle, Paris. **154**—Zoolog. Anzeiger.

GENERAL.—Bequaert, J.—Insects and man in tropical America.—Natural History, xxvi, 133-46. **Bergroth E. E.**—Obituary.—**8,** 1926, 63-7. **Cockayne, E. A.**—Teratological specimens in the Hope Dept. of Zool. in the Oxford Univ. Mus.—**36,** 1925, 395-402. **Ebert, H.**—Entomologie und zettelkatalog—**17,** xliii, 10. **Hancock, G. L. R.**—Winter entomological visit to Central Brazil.—**9,** lix, 49-52. **Howard, L. O.**—Great economic waste.—Natural History, xxvi, 124-32. **Karny, H. H.**—Zur nomenklaturfrage.—Treubia, Buitzenzorg, vi, 442-9, 1925. **Lutz, F. E.**—Taking nature lore to the public. Friendly insects. Insects sounds.—Natural History, xxvi, 111-24; 147-51; 206-213. **Mutchler & Lutz.**—Principal orders of insects.—Natural History, xxvi, 164. **Roeher, A.**—Ueber das wesen der färbung und des geruchs.—**26,** vi, 41-44. **Savin, W. M.**—Some residents of a brook.—Natural History, xxvi, 184-90. **Wardle & Buckle.**—Principles of insect control.—Pub. Univ. Manchester, Biol. Ser. No. 3, 295 pp.

ANATOMY, PHYSIOLOGY, MEDICAL, ETC.—Kopec, S.—Is the insect metamorphosis influenced by thyriod feeding?—**101,** 1, 339-54. **Payne, N. M.**—Freezing and survival of insects at low temperatures.—Quart. Rev. Biol., i, 270-82. **Van Herk, A. H.**—Les insectes voient-ils des couleurs? Contr. a la question par des experiences faites sur Scatophaga stercoraria.—Arch. Neerl. Phys. de Homme et Animaux, x, 510-41. **Weber, H.**—Das problem der gliederung des insektenthorax.—**154,** lxvi, 9-31; 115-32.

ARACHNIDA AND MYRIOPODA.—du Buisson, M.—Recherches sur la circulation sanguine et la ventilation pulmonaire chez les scorpions.—Bul. Sci., Ac. R. Belg., xi, 666-80. **Gottlieb, K.**—Ueber das gehirn des scorpions.—**104,** cxxvii, 185-243. **Brown, B.**—Another luminous spider.—**68,** lxiii, 383. **Jawlowski, H.**—Ueber die funktionen des zentralnervensystems des Lithobius forficatus [Polish].—Trav. Soc. Sci. Let., Wilno, i, 57-72, 2924. **Petrunkevitch, A.**—Value of instinct as a taxonomic character in spiders.—**101,** 1, 427-32.

(S) *Hirst, S.—On some new genera and species of Arachnida [one sp. from Gorgona Id.]. **103,** 1925, 1271-80. *Petrunkevitch, A.—Spiders from the Virgin Islands. Tr. Conn. Ac. Arts & Sci., xxviii, 21-78. *Stanley, A.—On the parasitic mites of the suborder Prostigmata (Trombidioidea) found on lizards [one sp. cited from Texas].—Jour. Linn. Soc. London, Zool., xxxvi, 173-200.

THE SMALLER ORDERS OF INSECTA.—Abbott, C. E.—Death feigning in Anax junius and Aeschna sp. **5,** xxxiii, 8-10. Calvert, P. P.—Relations of a late autumnal dragonfly (Odonata) to temperature.—Ecology vii, 185-90. Willem, V.—Notes ethologiques sur divers Collemboles. —Bul. Sci., Ac. R. Belg., xi, 617-36.

(N) *Snyder, T. E.—Notes on termites from Arizona with descriptions of two n. sps.—Univ. Cal. Pub., Zool., xxviii, 389-97. *Tillyard, R. J.—Kansas permian insects. The order Copeognatha.—Am. Jour. Sci., xi, 315-39. *Watson, J. R.—New Thysanoptera from Florida and Key to No. Am. sps. of Chicothrips. **39,** ix, 58-60.

(S) *Watson, J. R.—Two new Thysanoptera from Cuba. —**39,** ix, 53-5.

ORTHOPTERA.—Abbott, R. L.—Contributions to the physiology of digestion in the Australian roach.—**133,** xliv, 219-53. Murray, M. R.—Secretion in the amitotic cells of the cricket egg follicle.—**101,** 1, 210-34. Pospelov, V. P.—Influence of temperature on the maturation and general health of Locusta migratoria.—**22,** xvi, 363-7. Toumanoff, K.—L'action combinee de l'obscurite et la temperature sur la melanogenese chez Dixippus morosus.—**77,** xciv, 565-6.

HEMIPTERA.—Ackerman, L.—Physiological basis of wing production in the grain aphid.—**133,** xliv, 1-61. Gimingham, C. T.—On the presence of an egg-burster in Aphididae.—**36,** 1925, 585-90. Janisch, R.—Lebenweise und systematik der "schwarzen blattläuse."—Arb. Biol. Reichs. f. Landu. Forstw., Berlin, xiv, 291-366. Mahdihassan, S.—Early recognition of sex among lac insects.—Jour. Indian Inst. Sci., ix a, 1-24. Poisson, R.—Les elements cytoplasmiques figures et leur evolution au cours de la spermatogenese chez Notonecta maculata.—**77,** xciv, 562-4. Smith, K. M.—Comparative study of the feeding methods of certain hemiptera.—**116,** xiii, 109-39.

(N) Drake, C. J.—North Am. Tingitidae described by Stal.—An. Carnegie Mus., xvi, 375-80. Stichel, W.—Die systematische stellung der gattung Myodocha.—**56,** iv, 392-8.

(S) *Hungerford, H. B.—Some Notonecta from South

America.—**5,** xxxiii, 11-15. ***Larrousse, F.**—Descr. de deux especes nouv. du genre Triatoma.—Am. Parasit. Hum. et Comp., iv, 136-9. ***Osborn, H.**—Neotropical Homoptera...Report upon the collections in the subfamily Cicadellinae with descriptions of n. sps.—An. Carnegie Mus., xvi, 155-248.

LEPIDOPTERA.—Clark, A. H.—Notes on the odors of some New England butterflies.—**5,** xxxiii, 1-5. **Deutsch, A.**—Ueber lauterzeugung bei schmetterlingen.—**26,** 33-5, **Foester, E.**—Frische Luft und feuchtigkeit, ein haupterfordernis zu erfolgreicher raupenzucht.—**17,** xliii, 9. **Harrison & Peacock.**—On parthenogenesis originating in lepidopterous crosses.—Trans. N. H. Soc. Northumb., Durham & Newcas.-upon-Tyne, vi, 201-17. **Kellogg, V.**—Color dust of the butterfly.—Natural History, xxvi, 152-8. **Mjoberg, E.**—Strange way in which the vishnu moth (Trabala vishnu) deposits her eggs in the shape of larvae.—**5,** xxxiii, 6-7. **Patch, E. M.**—Adventures of Ctenucha—a meadow caterpillar.—Natural History, xxvi, 200-13. **Philpott, A.**—Labial palpi of Trichophysetis cretacea and Argyria amoenalis.—**177,** 1, 381-2. **Prueffer, J.**—La phenomene d'allechement des males par des femelles cher Lymantria dispar. [Polish]—Trav. Soc. Sci. Let., Wilno, i, 138-45. **Tschirwinsky, P.**—Einige optische beobachtungen an den schuppen der schmetterlinge.—**89,** xlviii, Anat., 1-18. **Watson & Lutz.**—Our common butterflies.—Natural History, xxvi, 165-83.

(N) **Barnes & Benjamin.**—List of diurnal lepidoptera.—Bul. So. Cal. Acad. Sci., xxv, 3-27. ***Barnes & Benjamin.**—Synonymic notes and n. sps. of L.—**15,** xiv, 1-10. ***Cockerell, T. D. A.**—A new fossil moth from Florissant.—**5,** xxxiii, 16-17. **Philpott, A.**—Venation of the Hepialidae.—**36,** 1925, 531-35. **Rebel, H.**—Revision des formenkreises von Philosamia cynthia.—**120,** xxxix, 154-76.

(S) ***Avinoff, A.**—Descriptions of some n. sps and var. of Rhopalocera in the Carnegie Mus.—An. Carnegie Mus., xvi, 355-74. ***Draut, M.**—Gross-Schmetterl. der Erde, Fauna Amer., vii, 221-252. **Fletcher, T. B.**—On Walker's types of plume-moths in the National Coll.: Redescription and notes.—**36,** 1925, 599-639. **Haviland & Poulton.**—Defensive colour and pattern in four caterpillars from Br. Guiana.—**36,** 1925, 575-79. ***Jones, F. M.**—A new psychid from South America.—**26,** 1925, 509-11. **Michael, O.**—Betrachtungen über die Nymphaliden der Amazonasebene und der angrenzenden teile der andinen region.—**14,** xxxix, 185-88. (Cont.) ***Niepelt, W.**—Neue und wenig bekannte südamerikanische tagfalter.—**18,** xix, 352-4. ***Prout, L. B.**—New Geometridae.—**71,** xxxiii, 1-32.

DIPTERA.—Ballou, L. M.—Some dipterous galls of California.—**13,** xviii, 25-32. **Freeborn, S. B.**—The mosquitoes of California.—Univ. Cal. Pub., Ent., iii, 333-460. **Gianferrari, L.**—Esperienze di alimentazione di Calliphora erythrocephala con corticale e midollare surrenale.—At. Soc. Ital. Sci. Nat. Mus. Civ. Milano, lxiv, 219-29. **Keeler, C. E.**—Recent work by Gabritschevsky on the inheritance of color var. in Volucella bombylans.—**5,** xxxiii, 22-7. **Langeron, M.**—Sexualite des larves de moustiques.—An. Parasit. Hum. et Comp., iv, 126-35. **MacGregor, M. E.**—Some effects of electric current on mosquito development.—**22,** xvi, 315-17. **Ruebsaaman & Hedicke.**—Die cecidomyiden und ihre cecidien.—Zoologica, xxix, Lief. 1, Heft 77, 112 pp., pls. **Solowiow, P.**—Zur biologie von Anopheles maculipennis.—**20,** xli, 9-10. **Thompson, W. R.**—Recherches sur les larves des Tachinaires Strumia, Winthemia, Carcellia et Exorista.—An. Parasitol. Hum. et Comp., iv, 111-25.

(N) **Aldrich, J. M.**—On the status of the generic name Anthrax Scop. What is Oestrus nasalis Lin.?—**15,** xiv, 12-15; 15-16. ***Alexander, C. P.**—Undescribed sps. of crane flies from U. S. and Canada.—**15,** xiv, 19-24. **Duda, O.**—Monographie der Sepsiden.—**120,** xxxix, 1-153. **Johnson, C. W.**—Distribution of Muscina pascuorum in America.—**5,** xxxiii, 20-1. ***Rogers, J. S.**—A new Dicranomyia allied to D. immodesta (Tipulidae).—**39,** ix, 49-52. ***Townsend, C. H. T.**—New Holarctic Muscoidea.—**15,** xiv, 24-41.

(S) ***Bertoni, A. W.**—Nuevo Phlebotomus o karachai del Paraguay.—Rev. Soc. Cien. Parag., ii, 79. **Dyar, H. G.**—Note on Phalangomyia. Larva of Dendromyia intonca.—**15,** xiv, 41-3; 43-4. ***Komp, W. H. W.**—A new Culex from Honduras.—**15,** xiv, 44-5. ***Seguy, E.**—Etude sur quelques Calliphorines testaces rares ou peu connus.—**153,** 1925, 439-41. ***Shannon, R. C.**—The occurrence of Phlebotomus in Panama.—Jour. Wash. Acad. Sci., xvi, 190-3.

COLEOPTERA.—(N) **Falcoz, L.**—Position systematique des genres Diphyllus et Diplocoelus.—**59,** (B), Col., i, 69-73. **Fleutiaux, E.**—Remarques et observations sur le Catalogue des Elateridae, Ire part. de Schenkling.—**24,** xcv, 91-112.

(S) **Bertoni, A. W.**—Coccinelidos del Paraguay.—Rev. Soc. Cien. Paraguay, ii, 74. ***Bryant, G. E.**—New species of Phytophaga. [one from Haiti].—**75,** xvii, 403-10. ***Thery, A.**—Recherches synonymiques sur les Buprestides et descr. especes nouvelles.—**33,** lxvi, 33-74. ***Wendeler, H.**—Zwei neue Taenodema-arten aus Costa Rica (Staphylinidae).—**47,** iii, 147-8.

HYMENOPTERA.—Hannes, F.—Bienenflugton und flügelschlagzahl.—**107,** xlvi, 129-42. **Karawajew, W.**—Ueber den nestbau von Polyrhachis tubifex (Formicidae).—**107,** xlvi, 143-5. **Metalnikov et Chorine.**—Due role jour les hymenopteres dans l'infection de Galleria mellonella.—**69,** clxxxii, 729-30. **Pagden, H. T.**—Observations on the habits and parthenogenesis of Methoca ichneumonidae (Vespoidea).—**36,** 1925, 571-98. **Schwartz, H. F.**—Some interesting habits of our native bees.—Natural History, xxvi, 159-63. **Stadler, H.**—Drohnenbrütigkeit bei wespen.—**154,** lxvi, 92-6.

(N) ***Gahan, A. B.**—Notes on Encyrtidae (Chalcidoidea) bred from psyllids, with descr. of a n. sp.—**22,** xvi, 373-5. **Santschi, F.**—Trois notes myrmecologiques.—**24,** xcv, 13-28. ***Viereck, H. L.**—Descr. of new bees of the genus Andrena in the collection of Pomona College.—**13,** xviii, 1-5.

(S). ***Bertoni, A. W.**—Himenopteros nuevos o poco conocidos.—Rev. Soc. Cien. Paraguay, ii, 74-9. **Cockerell, T. D. A.**—Descr. and records of bees. CIX.—**75,** xvii, 301-9.

SPECIAL NOTICES

La plaga de la langosta en Mexico. Publicado por el departamento de informacion y propanganda. Junta Nacional Directora de la Campana Contra la Langosta, Veracruz. This publication, of small octavo size, 179 pp., ill., contains general information about the migratory locust and its ravages in Mexico.

APPLIED ENTOMOLOGY. An Introductory Text-Book of Insects in their Relation to Man. By H. T. FERNALD. Second Edition. McGraw Book Co., Inc., New York. 395 pp. $3.50.

The first edition of this book appeared in 1921 and was reviewed in the NEWS, vol. xxxii, p. 285. The second edition shows very little change in contents, so we will refer the reader to our earlier review, confining the present note to the additional matter incorporated, of which the following may be mentoned: The Mexican Bean Beetle and the Oriental Fruit Moth are among the additional pests included. Mention is made of the discovery in Florida of a member of the new order Zoraptera; and additional facts concerning leaf hoppers and lepidopterous borers are given. "The chapter on Hymenoptera has been considerably rearranged to bring it more nearly into agreement with the order followed by Comstock in the new edition of his Introduction to Entomology. . . . . a chapter has been added, dealing with injurious animals more or less related to insects with which the entomologist is expected to cope," such as ticks, spiders and mites. E. T. CRESSON, JR.

Doings of Societies.

The American Entomological Society.

Meeting of December 17, 1925, in the hall of the Academy of Natural Sciences of Philadelphia. Dr. Skinner presiding. Thirteen members and visitors were present.

The meeting was opened to nominations of officers and committees. Dr. Skinner and Dr. Calvert were nominated for president, in succession, but both declined the nomination. Other nominations were made to be voted on at the January meeting.

Mr. F. M. Jones made a short communication on a future publication of his on Psychid moths.

Dr. Skinner made a few remarks on the Satyrinae and illustrated with mounted specimens.

Meeting of January 28, 1926, in the same hall. Dr. Skinner presiding. Fourteen members and visitors were present.

The annual reports of the Recording Secretary and the Librarian were read. Mr. Cresson, Jr., read an informal report of the Treasurer, which was referred to the Finance Committee for audit. Mr. Rehn read the report of the Publication Committee and a supplementary report of a later meeting of the same committee. The report of the Committee on Collecting Trips was read with a program of trips for the 1926 season.

A motion made by Mr. Cresson, Jr., that "until further notice, meetings be held on the fourth Thursday of January, February, March, April, May, September and October, and on the third Thursday of November and December," was passed.

A motion was made and passed: "It is suggested that at the meetings to be held in February, April, September and November of this year, only business of an important nature be presented, these meetings to be considered as meetings during which members and visitors may consult the collections and library under the supervision of the responsible officers and their representatives."

Dr. Henry Skinner was elected to honorary membership. Mrs. C. Reed Carey was elected a resident member. The following nominees, of the December meeting, were elected unanimously for 1926: R. C. Williams, *President;* P. Laurent, *Vice-President;* J. A. G. Rehn, *Corresponding Secretary;* R. J. Titherington, *Recording Secretary;* E. T. Cresson, Jr., *Treasurer;* E. T. Cresson, Jr., *Librarian;* W. J. Coxey, *Curator.*

Finance Committee—H. Skinner, M. Hebard, W. J. Coxey.

Publication Committee—J. A. G. Rehn, P. P. Calvert, H. Skinner.

Library Committee— F. M. Jones, F. R. Mason, W. J. Coxey.

A motion by Mr. Hornig, giving Dr. Skinner and Dr. Calvert a vote of thanks for past services was approved. Mr. Rehn moved that honorary members receive publications of the Society free of charge; approved.

Meeting of February 25, 1926, in the same hall. Mr. Williams presiding. Eight members and one visitor were present.

The meeting was adjourned and given over to identification of specimens and consultation of the library by members.

R. J. TITHERINGTON, *Recording Secretary.*

Kansas Entomological Society.

The second annual meeting of the Kansas Entomological Society was held on April 24th, at Lawrence, Kansas. The program consisted of informal talks on the entomological problems under way in the state. Officers selected for the ensuing year are Dr. R. C. Smith, president, and R. H. Beamer, secretary.

OBITUARY.

DR. ERNST EVALD BERGROTH.

The eminent Finnish Entomologist, Dr. Ernst Evald Bergroth, passed away on the 22nd of November, 1925, in his 68th year. He was born in Jakobstadt, April 1st, 1857, and very early developed an abiding interest in natural history. He entered the University of Helsingsfors when 17 years of age, taking a course in mathematics and natural sciences. In 1879, shortly before concluding this course, he changed to medicine. From Helsingsfors he went to Stockholm to finish his studies and there received his diploma to practice in 1886 and in that same year was married. All during this period, both at Helsingsfors and at Stockholm, he kept up his interest and study of natural history. While at Helsingsfors Dr. Bergroth came in close contact with the celebrated Hemipterist, Dr. O. M. Reuter, whose scholarly attainments were a great inspiration to him. At Stockholm he had the opportunity to study the extensive collections of Hemiptera which were the basis of Stal's classic work. Although Dr. Bergroth did not at first confine himself strictly to the Hemiptera, it must have

been largely these two influences in his life which later naturally inclined him in that direction. After receiving his diploma he practiced medicine in Finland from 1887 to 1905, first as Community Doctor at Tammela and later as Chief Doctor in Tammerfors. He was very highly regarded as a physician in his native country; but his international reputation was established not by virtue of his profession but because of his scholarly contributions to the knowledge of the Hemiptera of the world.

Dr. Bergroth lived in the United States from 1905 to 1911, going first to Seattle, Washington, where he remained for a few months and then to Duluth, Minnesota, where he practiced medicine during 1906 and 1907. Later, until 1911, he lived in Fitchburg, Massachusetts, from which place he returned to resume practice in his native country. While in the United States he apparently made no extensive collections of Hemiptera but he did visit most of the prominent museums, borrowing and studying material which formed the basis of a number of his later papers.

He was an excellent linguist, speaking and writing a number of languages with equal facility, and it was this great linguistic ability which helped him to gain such a wide knowledge of entomological literature. After his sojourn in the United States he became so adept in the use of English that most of his later papers were written in that language. His mastery of tongues also gave him wide opportunities for publication in the entomological magazines in various countries of Europe. It was a wonderful achievement that, leading such a busy professional life, he could find the time to contribute so much to the knowledge of the Hemiptera of the world. Altogether from the appearance of his first scientific paper in 1878 up to 1925 he had contributed over 300 articles, most of which are devoted to Hemiptera. He did not find the time to write extensive monographs, as did other professional Entomologists, but all his papers are of great importance to the student; for they contain, besides the descriptions of new species, running comments and criticisms which add greatly to the value of his articles.

It is said that he possessed no extensive collection but availed himself of the rich store of specimens in various museums. In addition to this much material passed through his hands from collectors all over the world. The Hemipterists in the United States have always been much impressed by the wide grasp of his knowledge of the subject. His papers as they came along at frequent intervals, some five or six a year, were examined with great interest. His wonderful memory of systematized facts, his keen analysis of salient points and his clear, fluent method of expression make his papers most interesting and valuable reading to the systematist. He was quick to detect superficial, careless work and it was typical of the man that he could not tolerate such, his criticisms being often quite caustic. How many of us were accustomed to refer to him some question of doubt; how many of us were encouraged along the way by his helpful correspondence!

Though by his passing the Entomological world has been deprived of these helpful personal contacts, it has been left richer in inspiration to research by the example of his life.

H. G. BARBER.

Science for April 2, 1926, announces the death of BENJAMIN PICKMAN MANN, on March 22, at Washington, D. C., where he had been an examiner in the United States Patent Office since 1887. He was born at West Newton, Massachusetts, April 30, 1848, received the A. B. from Harvard in 1870, was government entomologist in Brazil, 1870-71; consulting economic entomologist, 1872-81; assistant entomologist and assistant in the division of entomology, U S. Department of Agriculture, 1881-1886; the first editor of *Psyche* (1874-85), and President in 1883 of the Cambridge Entomological Club, of which he was one of the foundation members, January 9, 1874. A prominent feature of the early volumes of *Psyche* was the "Bibliographical Record," compiled by Mann, who devoted himself especially to this side of entomology.

Dr. HENRY SKINNER died in the Polyclinic Hospital, Philadelphia, on Saturday, May 29, after a short illness. A fuller notice will appear later.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Will send volumes XXV (1921) and XXVII (1923), Revista Chilena de Historia Natural, in exchange for School Entomology by Sanderson & Peairs and Classbook of Economic Entomology by Wm. Lochhead (latest editions) sent to me by registered mail. Will give vol. XXV also for a copy of American Insects by V. L. Kellogg (last edition) sent registered. Prof. Dr. C. E. Porter, Casilla 2974, Santiago, Chile.

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Wanted for cash all kinds of hibern. pupae, such as P. troilus, rutulus, daunus, zolicaon, eurymedon, etc., A. orizaba, jorulla, S. columbia, californica, C. angulifera, A. luna, E. imperialis, C. regalis, also Sphingidae, etc. Send list with prices to Max Rothke, Scranton, Pa. (R. F. D. No. 2).

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For Exchange: Butterflies and moths from all parts of the world. Wanted: Sphingidae, Arctiidae, Catocalinae. Henry Wormsbacher, 1357 St. Charles Ave., Lakewood, Ohio.

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I will collect Coleoptera, Lepidoptera, Hemiptera, etc., in southwest Arkansas for those so interested. Miss Louise Knobel, East 3d St., Hope, Arkansas.

Wanted—Bembidion (Coleoptera, Carabidae) from South America, Africa, Australia, India. Will buy or exchange for North American Species. Howard Notman, 136 Joralemon St., Brooklyn, N. Y., U. S. A.

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